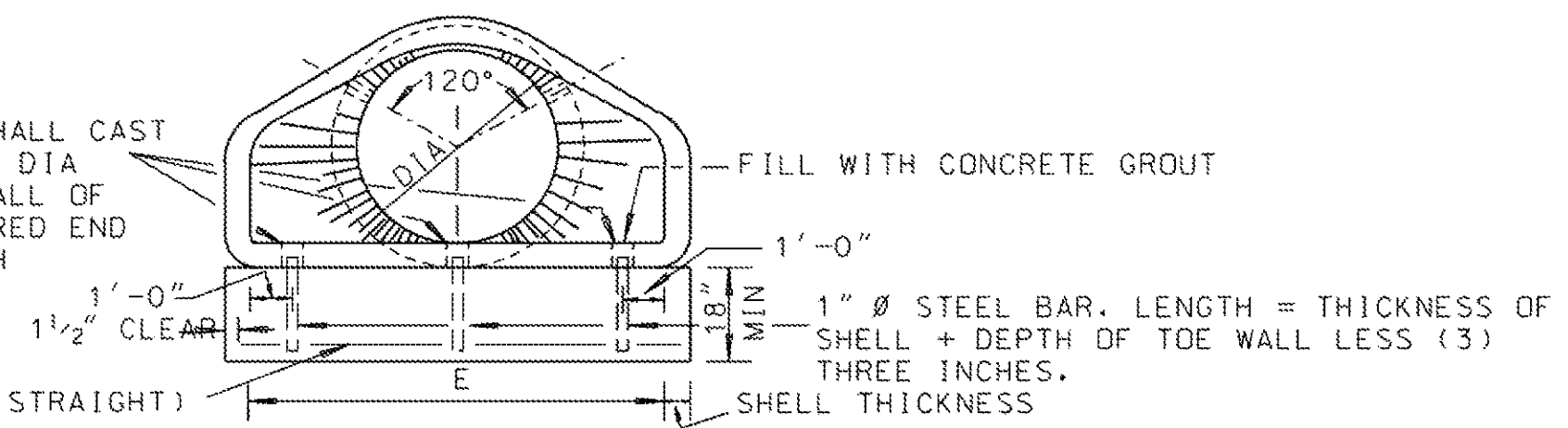
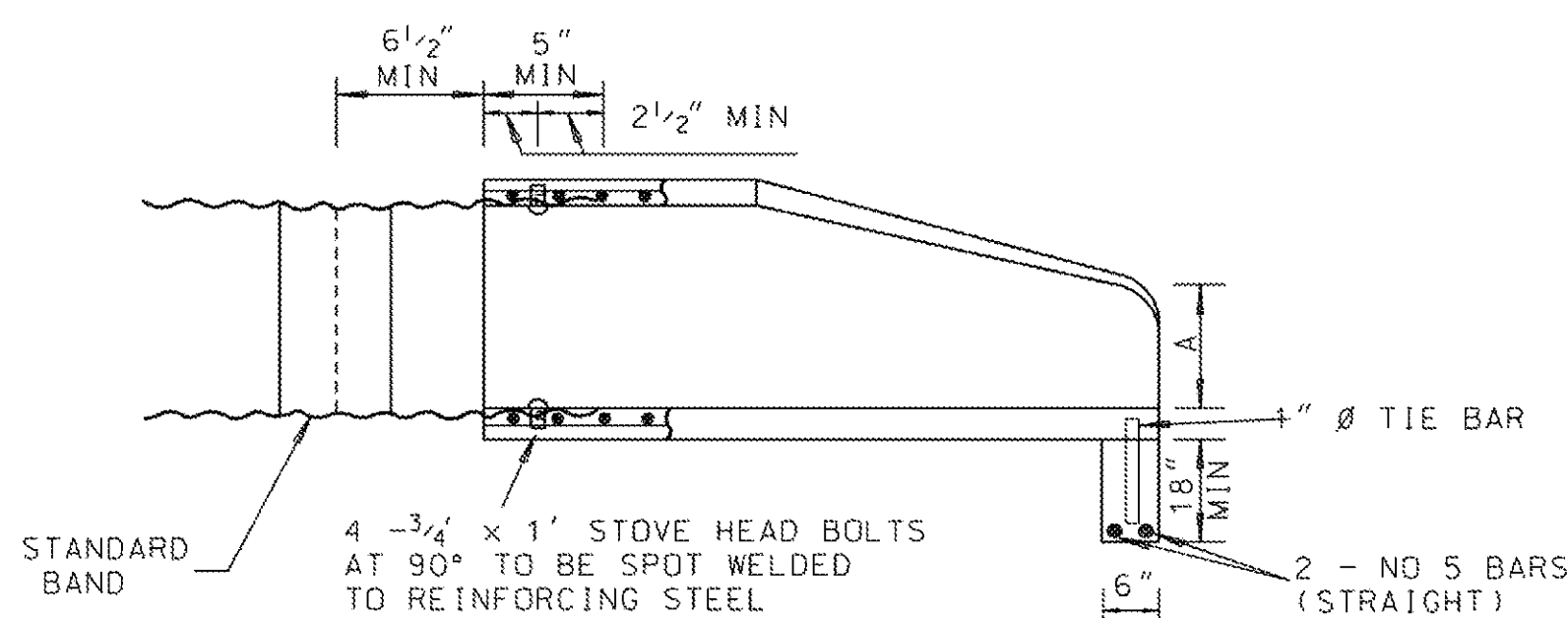


PLAN
(DRAWN FOR DOWNSTREAM SECTION)

NOTE: THE CONTRACTOR SHALL CAST (3) HOLES 1 1/2" IN DIA THROUGH BOTTOM WALL OF END SECTION. FLARED END FOR PIPES THROUGH 18" Ø REQUIRES TWO (2) HOLES.



FRONT ELEVATION



FLARED END W/CM STUB FOR ARCH & ROUND PIPE

DIA	WALL	SLOPE	FLARED END SECTION FOR CONCRETE ROUND PIPE					ROADWAY PIPE GRATE			SIDEDRAIN PIPE GRATE		
			A	B	C	E	L	"L" PIPE	"T" PIPE	SLOTS & HOLE	X1	"L" PIPE	X2
15"	2 1/4"	3:1	6"	2'-3"	3'-10"	2'-6"	6'-1"				9"	2@18" OC	9"
18"	2 1/2"	3:1	9"	2'-3"	3'-10"	3'-0"	6'-1"	2@12" OC	3	2	1'-7"	2@24" OC	1'-7"
24"	3"	3:1	10"	3'-8"	2'-6"	4'-0"	6'-2"	2@16" OC	3	2	1'-10"	2@36" OC	1'-10"
30"	3 1/2"	3:1	1'-0"	4'-6"	1'-8"	5'-0"	6'-2"	2@20" OC	3	2	2'-4"	2@48" OC	2'-4"
36"	4"	3:1	1'-3"	5'-3"	2'-11"	6'-0"	8'-2"	2@24" OC	3	2	3'-2"	2@60" OC	3'-2"
42"	4 1/2"	3:1	1'-9"	5'-3"	2'-11"	6'-6"	8'-2"	2@26" OC	3	2	4'-9"	2@66" OC	4'-9"
48"	5"	3:1	2'-0"	6'-0"	2'-2"	7'-0"	8'-2"	2@28" OC	3	2	5'-6"	2@72" OC	5'-6"
54"	5 1/2"	3:1	2'-4"	6'-6"	1'-10"	7'-6"	8'-4"	2@30" OC	3	2	6'-7"	2@78" OC	6'-7"
60"	6"	3:1	2'-10"	6'-6"	1'-10"	8'-0"	8'-4"	3@24" OC	3	2	8'-2"	2@84" OC	8'-2"
66"	6 1/2"	3:1	3'-4"	6'-6"	1'-10"	8'-6"	8'-4"	3@25 1/2" OC	3	2	9'-9"	2@90" OC	9'-9"
72"	7"	3:1	3'-10"	6'-6"	1'-10"	9'-0"	8'-4"	3@27" OC	3	2	11'-4"	2@96" OC	11'-4"

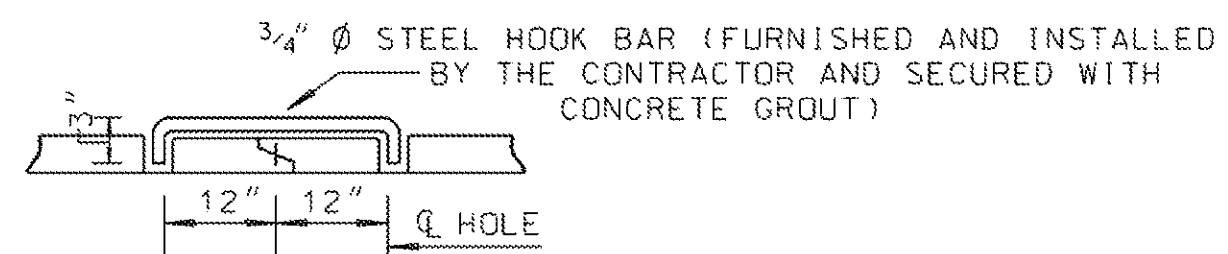
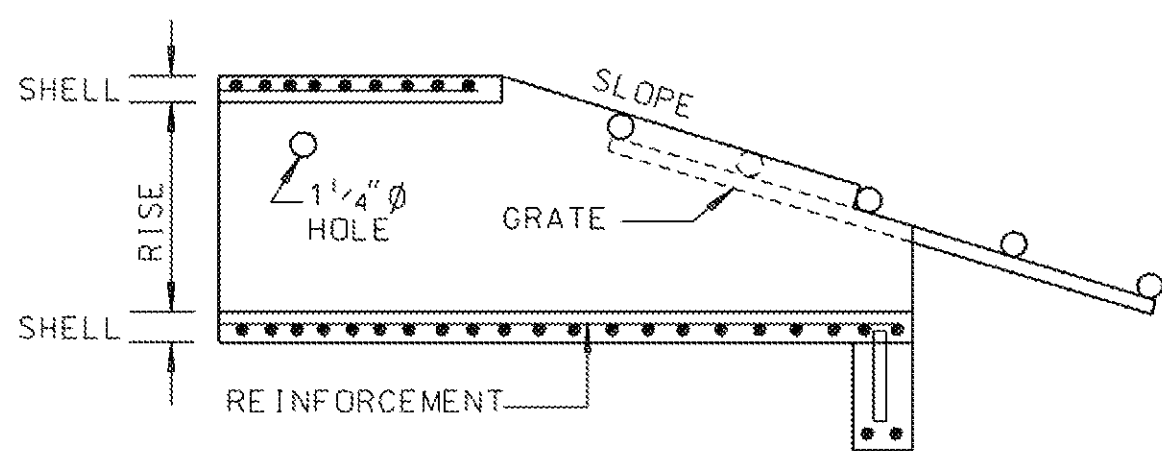
EQUIVALENT SIZE	RISE	SPAN	FLARED END SECTION FOR CONCRETE ARCH PIPE					ROADWAY PIPE GRATE			SIDEDRAIN PIPE GRATE				
			WALL	SLOPE	A	B	C	E	L	"L" PIPE	"T" PIPE	SLOTS & HOLES	X1	"L" PIPE	X2
15"	11"	18"	2 1/4"	3:1	7"	1'-9"	4'-3"	2'-6"	6'-0"				1'-1"	2@18" OC	1'-1"
18"	13 1/2"	22"	2 1/2"	3:1	7"	2'-3"	3'-9"	3'-0"	6'-0"	2@12" OC	3	2	1'-1"	2@24" OC	1'-1"
24"	18"	28 1/2"	3"	3:1	8"	3'-3"	2'-9"	4'-0"	6'-0"	2@16" OC	3	2	1'-4"	2@36" OC	1'-4"
30"	22 1/2"	36 1/4"	3 1/2"	3:1	10"	4'-0"	2'-0"	5'-0"	6'-0"	2@20" OC	3	2	1'-10"	2@48" OC	1'-10"
36"	26 5/8"	43 3/4"	4"	3:1	10 5/8"	5'-0"	3'-0"	6'-0"	8'-0"	2@24" OC	3	2	2'-1"	2@60" OC	2'-1"
42"	31 5/16"	51 1/8"	4 1/2"	3:1	1'-3 13/16"	5'-0"	3'-0"	6'-6"	8'-0"	2@26" OC	3	2	3'-5"	2@66" OC	3'-5"
48"	36"	58 1/2"	5"	3:1	1'-9"	5'-0"	3'-0"	7'-0"	8'-0"	2@28" OC	3	2	4'-9"	2@72" OC	4'-9"
54"	40"	65"	5 1/2"	3:1	2'-1 1/2"	5'-0"	3'-0"	7'-6"	8'-0"	2@30" OC	3	2	6'-0"	2@78" OC	6'-0"
60"	45"	73"	6"	3:1	2'-2"	6'-3"	1'-9"	8'-0"	8'-0"	3@24" OC	3	2	6'-0"	2@84" OC	6'-0"
72"	54"	88"	7"	3:1	2'-11"	6'-6"	1'-10"	10'-0"	8'-4"	3@30" OC	3	2	8'-5"	2@108" OC	8'-5"

GENERAL NOTES

- RAW METAL EXPOSED BY CUTTING AND DRILLING OF PIPE FOR GRATE ASSEMBLY WILL REQUIRE A GALVANIZING REPAIR PAINT IN ACCORDANCE WITH SECTION 855.31 OF ALABAMA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.
- COST OF TOE WALL AND DOWELS SHALL BE INCLUDED IN UNIT PRICE BID FOR FLARED CONCRETE END SECTION.
- SAFETY GRATE TO BE USED WHERE ROADWAY EMBANKMENT IS SHALLOD AND OPEN END OF FLARED SECTION IS INSIDE CLEAR ZONE OR WHEN DIRECTED BY THE ENGINEER.
- FLARED END SECTION WITHOUT GRATE SHALL BE CLASS 1. FLARED END SECTION WITH GRATE SHALL BE CLASS 2.
- PIPE FOR GRATES SHALL BE SCHEDULE 40, GALVANIZED (ASTM A120) HARDWARE SHALL BE GALVANIZED ACCORDING TO SPECIFICATIONS.
- IT IS EXPECTED THAT FLARED END UNITS WILL BE PRODUCED TO MEET THE ABOVE REQUIREMENTS. SLIGHT VARIATIONS FROM THE ABOVE DIMENSIONS MAY BE ALLOWED PROVIDED APPROVAL IS OBTAINED FROM THE ENGINEER.
- HOLES & SLOTS TO ATTACH GRATE, IF REQUIRED, SHALL BE CAST ALONG WITH END SECTION.
- CORRUGATED METAL STUB TO BE 14 GA MIN AND MATCH THE PIPE BEING CONNECTED TO IN ALL PROPERTIES ACCORDING TO SPECIFICATIONS. (PAVED INVERT NOT REQUIRED)
- 2 - 1 1/4" Ø HOLES, EACH PLACED AS SHOWN TO ACCOMMODATE 2 - 3/4" Ø TIE BOLTS, USED IN TYING SECTIONS TOGETHER (THE CONTRACTOR SHALL FURNISH AND INSTALL THE 3/4" Ø TIE BOLTS, WHICH SHALL BE INCLUDED IN THE UNIT PRICE BID FOR FLARED CONCRETE END SECTION.)

SECTION "XX" SHOWING VIEW OF SAFETY GRATE

(FOR DETAILS OF GRATE SEE SHEET 2 OF 2)

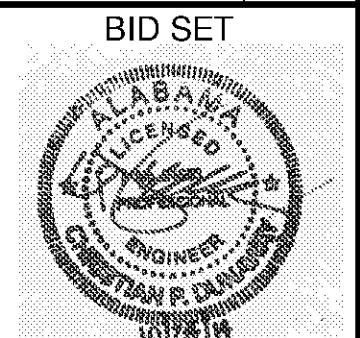


DETAIL OF TIE BOLT

FLARED END SECTION

1 DETAIL
SCALE: N.T.S.

ALABAMA DEPARTMENT OF TRANSPORTATION
SPECIAL DRAWING NO. **FE-619**
INDEX NO. **408**



BY	DATE	DESCRIPTION

MARK	DATE	DESCRIPTION

HUNTSVILLE UTILITIES
SOUTHEAST WATER TREATMENT PLANT
STANDARD CIVIL DETAILS

Project No.: 200-11740-10003
Designed By: JRW
Drawn By: JDV
Checked By: JPT

C-9509

Bar Measures 1 inch

10/1/2014 4:22:36 PM - I:\ERS\181\PROJECTS\IER11740\200-11740-10003\CAD\SHEET\TREATMENT PLANT\TWP-C-9509-DETAILS.DWG - REYES, HECTOR